

**CITY OF TUCSON, WATER DEPARTMENT  
DESIGN STANDARD NO. 8-14  
RECLAIMED WATER SYSTEM DESIGN STANDARDS**

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**RECLAIMED WATER SYSTEM DESIGN STANDARDS**

- 8-14.1.0      General**
  - 8-14.2.0      Reclaimed Water System Design Requirements**
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**8-14.0.0      RECLAIMED WATER SYSTEM DESIGN STANDARDS**

**8-14.1.0      General**

1.1      Purpose

This section describes the design standards and requirements for public and private reclaimed water system projects.

1.2      Definitions

Section 8-18 contains a list of definitions, abbreviations, and acronyms.

1.3      General Requirements

A. New Golf Courses and Turf Facilities

It is the policy of the Mayor and Council of the City of Tucson that all new golf courses and turf facilities of ten acres or more are required to use reclaimed water. (See Mayor and Council Water Policies.) The purpose of the reclaimed water system is to facilitate the reduction of potable water use.

B. Water Pressure

The customer is responsible to regulate the pressure on the private property side of the water meter to that required by the customer's facilities.

C. Rate of Flow

Tucson Water will deliver reclaimed water to the customer's on-site storage facility or the distribution system, but does not guarantee the flow rate to these facilities.

1.4      Applicability

The requirements contained herein apply to the Tucson Water all reclaimed water system and to private systems as noted herein.

**8-14.2.0      Reclaimed Water System Design Requirements**

In addition to the requirements in this section, designers should consult the "Reclaimed Water Policy Manual" available at the Tucson Water Reclaimed Water /Backflow Prevention Section counter, as well as the Mayor and Council Water Policies.

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The reclaimed water system is completely separate from the potable water system. The reclaimed water system has different pressure zones, high water elevations, operating pressures, and elevation boundaries. The reclaimed water service areas are totally separate from the potable water system's water service areas.

2.1 Pipeline Conveyances for Reclaimed Water

A. ADEQ Criteria for Pipeline Conveyances

For a reclaimed water system pipeline, the ADEQ's pipeline conveyance criteria are listed in the AAC R18-9-602.

B. Tucson Water Criteria for Pipeline Conveyances

All applicable potable water design standards listed in this manual also apply to reclaimed water pipeline conveyances unless otherwise noted in this section.

2.2 Discharge of Reclaimed Water

Should reclaimed water need to be discharged from a pipeline for any reason, including repairs or maintenance, contact Tucson Water's Environmental Performance Unit because permits may be required from ADEQ or Pima County Wastewater Management.

2.3 Private Plumbing Requirements

A. Interior Use of Reclaimed Water

1. Residential Buildings, Use Within Not Allowed

Interior use of reclaimed water is not allowed in residential buildings.

2. Non-Residential Buildings, Limited Use

For non-residential buildings, use of reclaimed water is limited to the following fixtures, which are listed in Appendix J of the Uniform Plumbing Code:

- toilets,
- urinals, and
- trap primers for floor drains and floor sinks.

3. Tank-Type Toilets, Warning Sign

Where tank-type toilets are flushed with reclaimed water, a permanent sign (such as plastic or stainless steel) shall be installed inside the tank to warn that the water within the tank is not a suitable emergency supply. The wording shall be:

RECLAIMED WATER – DO NOT DRINK

B. Exterior Use of Reclaimed Water, New Reclaimed Water Systems

1. Valves, Locking Feature

All valves, except fixture supply control valves, shall be equipped with a locking feature.

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2. Hose Bibs  
Hose bibs are not allowed on the reclaimed water piping.
  3. Quick Couplers, Commercial Areas  
Quick couplers that differ from those used on the potable water system shall be used on the reclaimed water piping.
  4. System Separation Testing, Cross-Connections  
Prior to the initial initiation of service, a dye test, pressure test, or visual inspection of reclaimed water pipe in open trenches will be performed by Tucson Water to ensure that there are no cross-connections with the potable water system.
- 2.4 Backflow Prevention for Potable Water Supplies  
On any premises where reclaimed water is used, all potable water supplies shall have appropriate backflow prevention. (Section 8-12)
- 2.5 Private On-site Storage
- A. Minimum Storage Capacity  
All golf courses that have reclaimed water service are required to have usable on-site storage equivalent to a minimum of one peak day's use. Tucson Water will deliver reclaimed water to this impoundment, but will not guarantee the impoundment's refill rate.
  - B. Automated Controls  
All golf courses that have reclaimed water service are required to have automated controls designed and constructed in accordance with Tucson Water requirements (See Section 8-10).
  - C. Lining of Reclaimed Water Impoundments  
For lining reclaimed water impoundments, all golf courses receiving reclaimed water will meet the requirements in AAC R18-9-713 C. 1.
  - D. Requirements, Discharge of Reclaimed Water into Impoundment  
All facilities that initiate reclaimed water deliveries to a surface impoundment after January 1, 2005 shall have an air gap separation between the impoundment and the reclaimed delivery pipeline.
- 2.6 Private On-Site Plan Review
- A. Residential Plan Review
    1. Tucson Water encourages plans for private on-site residential turf and landscape irrigation that will be using reclaimed water to be submitted to the Reclaimed Water/Backflow Prevention Section for review.
    2. The Reclaimed Water User Agreement, which must be signed by the financially responsible party prior to initiation of service,

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requires that a copy of the conceptual plans of the on-site reclaimed water system be kept on-site.

3. Customers are encouraged to call the Tucson Water Reclaimed Water/Backflow Prevention Section for an open trench inspection of all reclaimed water pipe. If the Reclaimed Water/Backflow Prevention Section has not conducted an open trench inspection, a dye test or pressure test will be required prior to initiation of reclaimed water service.

**B. Commercial Plan Review**

The Tucson Water Reclaimed Water/Backflow Prevention Section will review the private plumbing plans for reclaimed water at commercial premises for all uses other than turf and landscape irrigation.

**2.7 Water Meters**

Reclaimed water meters shall be turbo type meters, unless turbo meters are not available from the manufacturer in the required size.

**2.8 Utility Separation**

Reclaimed water pipes must meet the requirements of Section 8-08.4, Sewer Separation Requirements, which say, in part:

Reclaimed water pipes located adjacent to potable water pipes shall comply with the separation criteria established for pressure sanitary sewer lines. Where reclaimed water pipes are installed in the vicinity of sanitary sewer lines, the reclaimed water pipes shall be considered potable with respect to clearances.

**2.9 Identification Marking**

**A. Painting of Appurtenances**

All air/vacuum relief valves, valves, pressure reducing valves, pumps, pump control valves, meter box lids, interiors of meter boxes, and any other appurtenances to the reclaimed water system will be painted purple (Pantone No. 512) or have purple color integral to the material.

**B. Painting of Equipment**

All mechanical equipment which is appurtenant to the reclaimed water system shall be painted purple to match the Mylar wrapping tape.

**C. Signs for Valves**

All flanged side outlets, drain valve assemblies, blow-off valve assemblies, and combination air / vacuum release valves shall have a sign attached to provide a warning not to discharge reclaimed water.

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3.0 Adding Potable Water

A. Adding Potable Water, Air Gap

To add water from a potable system to a nonpotable system, an air gap is required between the two systems.

B. Adding Potable Water, Water Meter

Water meters shall be installed at locations where potable water is added to the reclaimed water system.